

**INFORMATION FOR CONSIDERATION FOR THE “GREEN
INFRASTRUCTURE” FUNDING FOR THE HERNANDO DWSI
PROJECT PHASE IV**

It is an important part of any water system to review the system to determine where deficiencies may have developed over a period of time. These deficiencies may include supply sources, treatment capacity issues, storage tanks issues, leakage in the distribution lines, worn-out or inadequate equipment and general overall system functions. While growth has occurred in the Hernando water system with the addition of new water mains and lot service, old existing water lines are causing daily problems.

The replacement of water lines as proposed in the Hernando DWSI Project IV are water lines that are in need of replacing due to leaks, water pressure issues, and type of material used in the past for the water lines and service lines.

The considerations in the planned improvements are the past history of problems with the increased demand on small water lines as the City grows, maintaining recommended water flows for areas and leaks in old water lines with the cost of repairing the lines within the city streets and loss of water due to the leaks. As the flows increase in the 4 inch and 6 inch lines, friction loss in the transportation of the water also increases. This causes increased pumping requirements and lower pressures. The loss of water due to leaks is a problem that has been experienced along the lines proposed in this project. Upon a field inspection, a count was made of nine areas where the streets had been repaired due to water leaks. Hernando calculates that the overall loss in water revenue based on the readings at the well meters versus the billings is 4.2 percent. Replacing the three lines within this project will reduce the water loss and just as important, the project will reduce the maintenance cost of repairs to the leaking lines, the cost to repair the streets and provide for the safety of driving on the street. Replacing the 4 inch line on Robinson Street will change a 40.39 head loss to a 0.31 loss. Replacing the 4 inch line on Highway 51 will change a 10.26 head loss to a 0.78 loss. Replacing the 4 inch line on Magnolia Street (Old highway 51) will benefit the City in expected growth, provide for the required water flows in the area and eliminate the existing asbestos cement line.

As determined in facility plan a hydraulic study was developed for the City. The calculations for the up-graded system have been developed to provide for a check to see the effectiveness of the improvements. These calculations are on file but not contained in this information report. Additional information from actual field testing of the water flows and water pressures should be a part of the final review of the effectiveness of the proposed improvements.

City of Hernando DWSI Phase IV

By the replacing of the three water line proposed in the Hernando project, the City will save money on repairs in the water lines due to leaks, save money on having to repair the streets, provide for safer streets, save money on electricity and pumping requirements by the pressure pumps, save money by pumping less water, and benefit from replacement of old asbestos cement water lines with plastic or ductile iron pipes.

Another improvement considered important to the over all function and savings for the Hernando system is a change in the chlorination delivery at the water plant. The water plant is designed to deliver chlorine, soda ash and fluoride to the system. The feasibility study reviewed a request by the operator of the plant (Southwest Water Co.) concerning the chlorine delivery system. Several water systems in the area have changes to liquid chlorine delivery instead of gas chlorine with good results. In the study of a possible change in the system, as noted in the facility plan, there would be a savings in the costs to operate a liquid chlorine system verses the gas system. But also important is the safety factor involved in the use and storage a gas chlorine bottles and delivery equipment. The facility plan concluded that the City would save money in making the change by needing less man hours to operate the system, a more reliable system, eliminating the danger of the chlorine gas and thus a far more safe system to the personal at the water plant and the residences in the area.

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